

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



LAWRENCE MIIKE
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
ENVIRONMENTAL MANAGEMENT DIVISION
SOLID AND HAZARDOUS WASTE BRANCH

919 ALA MOANA BLVD., #212
HONOLULU, HAWAII 96814

December 21, 1995

in reply, please refer to:
EMD / SHW

POLICY UPDATE
Technical Guidance Manual
for Underground Storage Tank Closure and Release Response

**Clarification of Monitoring Well Design Recommendations and
Acceptance of Groundwater Samples taken from Small-Diameter Monitoring Wells**

TO ALL INTERESTED PARTIES:

The Hawai'i Department of Health's (DOH) Solid and Hazardous Waste Branch, Underground Storage Tank Section, is issuing a policy update to its *Technical Guidance Manual for Underground Storage Tank Closure and Release Response* (August 1992). This policy update is effective immediately.

The policy update clarifies recommended monitoring well designs and provides additional guidance on the use of small-diameter (<2") monitoring wells to investigate groundwater contamination. DOH does not place a limit on the minimum acceptable diameter of monitoring wells provided that the monitoring well is constructed in accordance with recommended guidelines and provided that acceptable methods are used to collect groundwater samples from the well. Caution should be taken when deciding the appropriateness of small-diameter wells at a site, however, due to potential problems with well installment, well clogging, sample collection, and proper placement of the screened interval of the well.

Please bring this policy update to the attention of anyone you know who may have an interest in this matter. Should you have any questions regarding this policy update, please contact the Underground Storage Tank Section at (808) 586-4226.

Sincerely,

STEVEN Y. K. CHANG, P. E., MANAGER
Solid and Hazardous Waste Branch

Attachment

CLARIFICATION OF MONITORING WELL DESIGN RECOMMENDATIONS AND ACCEPTANCE OF GROUNDWATER SAMPLES TAKEN FROM SMALL-DIAMETER WELLS

Background

Original U. S. Environmental Protection Agency (USEPA) guidance for the installation of monitoring wells at sites regulated under the Resource Conservation and Recovery Act (RCRA) recommends that well casings should have either a two-inch or four-inch inside diameter (USEPA, 1986). The diameters recommended were based on several factors (USEPA, 1991): 1) the size of well materials commonly manufactured (e.g., three-inch well casings were not generally available); 2) the available sizes of devices used to extract water samples (bailer, pump, etc.); 3) the depth of the well (e.g., deeper wells require stronger materials); and 4) the future use of the well (e.g. subsequent conversion to an extraction well, well durability, etc). Cost is also a consideration; small diameter wells are generally less expensive to install than large diameter wells.

The recent advent of push-type devices (e.g., Geoprobe, Strataprobe, etc.) for the investigation of subsurface contamination has provided environmental consultants with the ability to rapidly and efficiently install small-diameter (less than two-inch) monitoring wells at sites, typically at a fraction of the cost of larger diameter wells. In the past, the Department of Health (DOH) has not specifically set restrictions on the diameter of monitoring wells that can be installed and used at a site. The purpose of this policy statement is to clarify DOH's position on monitoring well design and construction and address the acceptability of groundwater samples extracted from small-diameter wells.

DOH Policy

All monitoring wells intended for use in groundwater sampling programs are required to be designed and constructed in accordance with Department of Health (DOH) guidelines (HIDOH, 1992; 199_ (in preparation)) unless otherwise approved or directed. DOH does not set restrictions on the minimum allowable diameter of a monitoring well provided that the well is constructed in accordance with the above-stated guidelines. While the diameter of a monitoring well strongly affects the present and future **utility** and **efficiency** of the well, DOH does not consider well diameter to cause a significant negative bias on the **quality** of groundwater samples extracted from the well, provided that standard sampling procedures are adhered to. DOH also does not place restrictions on the use of push-type devices (e.g., Geoprobe, Strataprobe, etc.) to install small-diameter monitoring wells, again provided that the wells are designed and constructed in accordance with DOH-recommended guidelines.

As noted, small-diameter wells have distinct advantages but site-specific considerations must be taken into account before deciding on the well diameter most appropriate for a given site. Problems reported to DOH regarding the use of small-

diameter wells include difficulties in installing wells in soils or sediments with intermixed, consolidated rock; difficulties in obtaining adequate sample volumes in low permeability soils or sediments; clogging of wells over time; and difficulties in locating the vadose-zone/groundwater interface so that well screens can be properly positioned.

Note that this policy clarification is for general application only and DOH reserves the right to require specific monitoring well designs and sampling procedures on a site-by-site basis. For further guidance on the proper design, construction, and sampling of monitoring wells or clarification of this policy contact the Solid and Hazardous Waste Branch of DOH at 808-586-4226 or the Hazard Evaluation and Emergency Response office at 808-586-4249.

References:

- HIDOH. 1992. *Technical Guidance Manual For Underground Storage Tank Closure and Release Response (August, 1992)*: State of Hawai'i Department of Health, Environmental Management Division, Solid and Hazardous Waste Branch, Underground Storage Tank Section.
- HIDOH. 199_. *Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan (in preparation)*: State of Hawai'i Department of Health, Hazard Evaluation and Emergency Response.
- USEPA. 1986. *RCRA Ground-Water Monitoring Technical Enforcement Guidance Document*: U. S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, September, 1986.
- USEPA. 1991. *Groundwater, Volume II: Methodology (Handbook)*: U. S. Environmental Protection Agency, Office of Research and Development, July, 1991, (EPA/625/6-90/016b).

APPROVED / ~~DISAPPROVED~~


Bruce S. Anderson, Ph.D., Deputy Director for Environmental Health
Department of Health

JAN 3 1996

Date